

Everyone's Smart University

Project (Spring 2021)

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Section	Date	Course Code
Master	Thursday 18 / 03 / 2021.	(PMG510)

Project Risk Management

Instructions:

- اخر موعد للتسليم هو يوم السبت 2021-05-08 في تمام الساعة ٩ مساءً.
- الإجابة متاحة باللغة الإنجليزية أو اللغة العربية مع مراعاة أن تكون المصطلحات العلمية باللغة الانجليزية.
- يتم تسليم المشروع في صيغة ملف . pdf مع الالتزام نموذج الجامعة ولن تقبل أي مستندات أخرى.
- يجب مراعاة أقسام البحث الرئيسية (مقدمة Introduction، دراسات علمية سابقة Literature Review، طريقة البحث Methodology، النتائج والمناقشة Results and Discussion ، وأخيراً المراجع References . وان كان هناك ملحقات Appendices يتم إضافتها)
- يجب الالتزام بـ Theme موحد كما يلي:
- حجم الخط 12.
- نوع الخط Arial.
- لون الخط أسود.
- المسافة بين الأسطر line spacing 1.5
- عدد صفحات البحث (لا يقل عن ثلاث صفحات ولا يزيد عن ست صفحات).

Instructor's Name: Eng. Mosaab M. Hamed

Project:

Risk Identification and Analysis (Based on the project you chose in APM)

The objective of this report is to identify project risks, prepare a risk probability matrix, and carry out an analysis of selected risks. Referring to the project you select in **Advanced projects management APM course**, your task is to prepare a risk management plan that identifies potential risks in **the selected stage of the project** and identify risk management strategies.

From the course content and readings, you know that the overall purpose of risk planning is to anticipate possible risk events and be ready to take appropriate action when risk events occur—to eliminate or reduce negative impacts on the project.

You may wish to begin this exercise with a brainstorming about potential risks to get candidate risks “on the table” for consideration. And then identify and refine that wording for risks that have some realistic chance of occurring in this stage. For example, potential weather problems present a real obstacle to completing field data collection by the planned completion date. It is also an issue that the project manager will ultimately have to plan for, as opposed to other issues such as a major disaster (e.g., your office burning down), is not a high-enough probability event that requires much time in planning. As described below, you will select several of the identified risks and carry out a risk analysis.

You will use the distilled list of risks to make a risk probability/impact matrix. The matrix will have at least three categories (high/medium/low) for probability and impact.

Remember that it is important to name risks effectively—use words that describe the risk event and point to the impact on the project (e.g., “injury of field technician disrupts data installation work”).

After completion of the risk matrix, document a risk analysis for the selected risks. This detailed documentation for that selected risk will include:

- a description of the risk and potential impacts (schedule, quality of work, cost, etc.) on the project.
- indicators or triggers that would be monitored to help identify the risk as early as possible.
- specific risk response strategies to take.

Using probability and impact matrix calculate the **Expected Monetary Value (EMV)** for all risks that have the impact in terms of cost \$\$.

Best of luck...

المشروع:

التعرف على المخاطر وتحليلها (بحث مبني على مشروعك الذي اخترته في مادة ادارة المشاريع المتقدمة)

الغرض من هذا التقرير هو التعرف على المخاطر المحيطة بالمرحلة التي تختارها المرحلة من مراحل مشروعك (نفس المرحلة التي اخترت التطرق لها في مشروعك لمادة إدارة المشاريع المتقدمة Advanced project management) حيث أن مهمتك هي تحضير خطة متكاملة لإدارة المخاطر تشمل التعريف بالمخاطر المحتملة التي تحيط بتلك المرحلة وتحضير مصفوفة احتمالية المخاطر ومن ثم القيام بالتحليل لهذه المخاطر المختارة وتحديد استراتيجيات ادارة المخاطر المناسبة لكل خطر على حدة.

من محتويات المقرر والمصادر الأخرى المتاحة أصبحت تعلم الآن أن الغرض العام لمرحلة التخطيط للمخاطر هي توقع أحداث المخاطر المحتملة والتجهز لاتخاذ ردة الفعل المناسبة عند وقوع الخطر – لمنع أو تقليل الاثار السلبية على المشروع.

قد تحبذ بداية هذا البحث بعصف ذهني عن ماهية المخاطر التي قد تحيط بتلك المرحلة من مراحل مشروعك, وذلك للحصول على قائمة بتلك المخاطر. ومن ثم تحديد وتصفية هذه القائمة للوصول إلى قائمة مختصرة بالمخاطر التي لها فرصة واقعية أكبر في الحدوث. على سبيل المثال: المشاكل الجوية المتوقعة والتي تمثل عقبة حقيقية أمام اكتمال جمع البيانات من المواقع في أو قبل الوقت المحدد، هذه تعتبر مشكلة على مدير المشاريع أن يضعها في الحسبان. من ناحية أخرى، فإن المخاطر غير الواقعية مثل الكوارث الطبيعية والأعاصير (تلك التي تسبب حريقاً بمكتبك وفقدان الأوراق المهمة) ليست لها احتمالية وقوع عالية وبالتالي لاتستدعي تضيق الكثير من الوقت في التخطيط لها. كما سيتبين لك، ستقوم باختيار عدة مخاطر من تلك التي قمت بالتعرف عليها لتحليلها.

ستقوم باستخدام هذه القائمة المختصرة لعمل مصفوفة المخاطر (الاحتمالية/الأثر). المصفوفة ستحتوي على الأقل على ثلاث تصنيفات (عالي/متوسط/منخفض) للإحتمالية والأثر.

لاتنس استخدام أسماء تصف طبيعة المخاطر بصورة فعالة – قم باستخدام كلمات تصف الحادثة الخطرة وتشير الى أثرها على المشروع (مثل: إصابة أحد الفنيين في الموقع مما يؤثر على أعمال التركيب).

بعد انتهاءك من مصفوفة المخاطر، قم بتوثيق تحليلك للمخاطر المختارة. هذا التسجيل المفصل للمخاطر يجب أن يتضمن:

- وصف للخطر واثاره المحتملة (الجدولة، جودة العمل، التكلفة، الخ)
- المؤشرات والمحفزات التي يجب مراقبتها للمساعدة في التعرف على هذا الخطر قبل وقوعه
- تفصيل للاستجابة المقترحة للتصدي لهذا الخطر

باستخدام مصفوفة الاحتمالات والتأثير ، احسب **القيمة النقدية المتوقعة (EMV)** لجميع المخاطر التي لها تأثير من حيث التكلفة \$\$.

مع تمنياتي بالتوفيق..

Risk OF SOFTWARE PACKAGE FOR THERMAL DESIGN OF HEAT EXCHANGER

1. Introduction

At the end of 2015 I had a graduation project in the College of Engineering. Which took two semesters. This work is considered the first of its kind in our college, especially in the chemical engineering department. The purpose of the project was to create a package that would help students and other project-makers to design heat exchangers using Aspen Tech software. Although the design program was new to us as students and non-professionals, we faced many difficulties to learn, apply to the program, collect data, verify its validity, plan the implementation of the project and review it to the fullest.

After I finished my research of the advanced project management, in which I dealt with the scope of the project, the goal of the project, the strategies that I used, and the tools. I will write in this paper about most of the risks that faced this project in most of the project stages. I will often use identification tools and techniques as documentation review, information gathering technique and brainstorming to identify most of the risks. Then I will analysis the risks using risk management tools and calculate the expected monetary value (EMV).

Project risk management is the process of identifying, analyzing and responding to any risk that arises over the life cycle of a project to help the project remain on track and meet its goal. Risk management isn't reactive only; it should be part of the planning process to figure out risk that might happen in the project and how to control that risk if it in fact occurs.

2. Literature Review

The risk management process can be broken down into two interrelated phases, risk assessment and risk control. These phases are further broken down. Risk assessment involves risk identification, risk analysis, and risk prioritization. Risk control involves risk planning, risk mitigation, and risk monitoring. (Boehm, 1989) It is essential that risk management be done.

Risks need to be revisited at regular intervals for the team to reevaluate each risk to determine when new circumstances caused its probability and/or impact to change. At each interval, some risks may be added to the list and others taken away. Risks need to be reprioritized to see which are moved “above the line” and need to have action plans and which move “below the line” and no longer need action plans. A key to successful risk management is that proactive actions are owned by individuals and are monitored. (Larman, 2004)

3. Methodology

We will go through a process like 8Rs and 4Ts, to help ourselves finding the risk’s probabilities and its impacts. Brainstorming is the first step to identify all the possible risks. We will make a list of them.

Table 1

No.	List of Risks
1	list the tasks and distribute them to team members & define periods. (waste time)
2	Connections with advisor and team members. (delay in delivery and implementation)
3	Issues that we face in design program (technical issues)
4	Lack of experience and founding solutions in Heat exchanger problems (wrong modeling and simulation)
5	Material and Technical Support. (Reducing Cost)
6	Software update.(Need training)

Now we have a list of risks, we will make a risks matrix (determine the probability and impact of each risk), which will go after that to risk register. (low = 0 to 0.29, medium = 0.3 to 0.69, high = 0.7 to 1).

Figure 1

Probability	0.7-1	high	high	medium
	0.3-0.69	high	medium	low
	0-0.29	medium	low	low
		0.7-1	0.3-0.69	0-0.29
		Impact		

Table 2

No.	List of Risks	Probability	Impact
1	list the tasks and distribute them to team members & define periods. (waste time)	0.4	0.6
2	Connections with advisor and team members. (delay in delivery and implementation)	0.8	0.5
3	Issues that we face in design program (technical issues)	0.7	0.7
4	Lack of experience and founding solutions in Heat exchanger problems (wrong modeling and simulation)	0.3	0.2
5	Material and Technical Support. (Reducing Cost)	0.5	0.5
6	Software update.(Need training)	1	0.1

After collecting and evaluating the risks, it time to evaluate the severity to start thinking about the response plans for each risk and try to mitigate the impact. For calculating the severity, we used Risks Matrix and Bow-Tie to find the response plan.

Figure 2



Table 3

No.	List of Risks	Probability	Impact	severity	Response plan	Mitigate Actions
1	list the tasks and distribute them to team members & define periods. (waste time)	0.4	0.6	Medium	Designate a leader for the team & Using Engineering tools and techniques	Refer to the supervisor
2	Connections with advisor and team members. (delay in delivery and implementation)	0.8	0.5	high	Make connection plan to manage connection with all team members	Report all team meeting and agenda to be documented

3	Issues that we face in design program (technical issues)	0.7	0.7	High	Hire a specialist in technical problems	Hiring an external specialist
4	Lack of experience and founding solutions in Heat exchanger problems (wrong modeling and simulation)	0.3	0.2	Low	Reviewing gathering information	Refer to the advisor
5	Material and Technical Support. (Reducing Cost)	0.5	0.5	Meduim	Install a program and covering technical cost	External meeting cost
6	Software update.(Need training)	1	0.1	Low	Training and applying	Refer to the specialist

4. Results

Here we are going to calculate the EMV cost for our trip. All the numbers you are going to see are not exact cost, but it was evaluated based on the Advisor. The total potential impact on the plan is 1950 SR, while the contingency cost is 860 SR.

Table 4

No.	Risk	probability	Impact cost SR	Risk Contingency
1	list the tasks and distribute them to team members & define periods. (waste time)	0.4	0	0
2	Connections with advisor and team members. (delay in delivery and implementation)	0.8	0	0
3	Issues that we face in design program (technical issues)	0.7	500	350
4	Lack of experience and founding solutions in Heat exchanger problems (wrong modeling and simulation)	0.5	200	100
5	Material and Technical Support. (Reducing Cost)	0.3	1200	360
6	Software update.(Need training)	1.0	50	50
	Total	-	1950	860

5. Discussion

In (Table 3) we can see the result of reposing plan and how to mitigate the risk. It is important to note that we should be aware of all risks but shouldn't waste the time on risks with green color, it is better to focus on orange and red risks because they have higher probability and huge impact.

In (Table 4) we can see the result of the risks cost on the budget. The higher number was for not take a vaccine on time, so it has the higher priority. There are some risks that you should be careful from them like choose unknown tourism company, the level of travel pleasures and choosing Bad hotels. They will drag your money out of the pocket.

References

- 1- Boehm, B. and R. Turner (June 2003). "Using Risk to Balance Agile and Plan-Driven Methods." 36(6): 57-66.
- 2- Larman, C. (2004). Agile and Iterative Development: A Manager's Guide. Boston, Addison Wesle.